faqs

Glossary of Relevant Tests by Cleanroom Market

Pharmaceutical / Microelectronic

1. ***Suter:*** This test measures the ability of a woven fabric to resist hydrostatic pressure. A coverall in use ma be exposed to chemicals in liquid form, in which case it is important to provide a level of protection to the we from these chemicals. These fabrics are not liquid-proof and are not intended for use as protection against hazardous substances. The higher the Suter value, the better.

2. ***Pore Size:*** This test measures the average diameter of the interstices of a fabric in microns. Pore size can used to determine the maximum size of a particle that may pass through a cleanroom garment. Generally, th smaller the pore size, the better. Pore size is a good, relatively quick, measure of the filtration ability of a fabr but an even better test to measure the performance of a fabric in actual cleanroom usage is the Body Box te See "How Should Fabric Filtration be Measured?" below.

3. ***WVT and Air Porosity:*** WVT (water vapor transmission) and Air Porosity are tests that are used to meas the relative comfort of a fabric. WVT is the simulated measure of the amount of body moisture that will pass through a fabric in a 24-hour period. Air Porosity measures the volume of air, in cubic feet, that will pass thro a fabric in one minute. The greater the WVT and Air Porosity, the more comfortable a fabric will be; however, Porosity will be limited by Pore Size.

4. ***Helmke Drum:*** This is a device used to count the number of available or releasable particles on a cleanro garment. Particles between 0.1 - 5.0 microns are the usual size of particles on a fabric. For cleanroom classification of fabrics/garments, released particles equal to or greater than 0.5 microns are counted. The lo the count of these particles, the better. The number of particles counted by the Helmke Drum can determine i the fabric has been properly laundered. It can also show if the fabric is degrading.

5. ***Static Decay and Surface Resistivity:*** These tests measure the electrical characteristics of ESD control fabrics for use in microelectronic environments. These fabrics are designed to provide a controlled release of electrical charge that will not damage sensitive circuitry. Static Decay is the speed of the charge-draining of materials. The faster the decay time, the better. Surface Resistivity measures the resistance of electrical flow over or through a fabric in ohms. The Surface Resitivity of fabrics used in ESD controlled areas should be between 105 - 1010 megaohms. The lower the Surface Resistivity (the closer to 105), the better a charge is dissipated, and the greater the ESD protection.

6. ***PFE (Particle Filtration Efficiency):*** The PFE test proposes to measure the number of particles of a give size that will pass through a fabric. Because the PFE test procedure is not performed in a controlled environment that will expose a fabric sample to equal conditions at all times, it cannot provide repeatable res from different test periods. This invalidates any results that are generated from this testing. Pore size is a bet measure of the efficiency of a fabric to resist the penetration of particles through a fabric, and the Body Box t is an even superior measure. See "How should fabric filtration be measured?" below.

7. ***Water Repellency (Spray Test):*** The Spray test measures the resistance of a fabric to wetting by water. I especially useful to determine the effectiveness of a water repellant finish applied to a fabric. The higher the Spray rating, the better.

8. ***Body Box (Particle Containment Test):*** Body Box testing measures the relative differences between various cleanroom fabrics in apparel form. The test consists of a test subject performing the "March and Tou and the "Deep Knee Bend" activities in an enclosed clean area about the size of a telephone booth. Air is blo downward on the subject and released particles at 0.5 microns or greater are then counted by a laser particl counter. The lower the number of particles, the better the performance of the fabric/garment combination.

Spray Room

1. ***Paint Bleed Through:*** The measure of paint going through the fabric. The lower the better.

2. ***WVT and Air Porosity:*** WVT (water vapor transmission) and Air Porosity are tests that are used to meas the relative comfort of a fabric. WVT is the simulated measure of the amount of body moisture that will pass through a fabric in a 24-hour period. Air Porosity measures the volume of air, in cubic feet, that will pass thro a fabric in one minute. The greater the WVT and Air Porosity, the more comfortable a fabric will be; however, Porosity will be limited by Pore Size.

3. ***Pore Size:*** This test measures the average diameter of the interstices of a fabric in microns. Pore size can used to determine the maximum size of a particle that may pass through a cleanroom garment. Generally, th smaller the pore size, the better. Pore size is a good, relatively quick, measure of the filtration ability of a fabr but an even better test to measure the performance of a fabric in actual cleanroom usage is the Body Box te **See "How Should Fabric Filtration be Measured?" below.**

Contamination Control

1. ***Helmke Drum:*** This is a device used to count the number of available or releasable particles on a cleanro garment. Particles between 0.1 - 5.0 microns are the usual size of particles on a fabric. For cleanroom classification of fabrics/garments, released particles equal to or greater than 0.5 microns are counted. The lo the count of these particles, the better. The number of particles counted by the Helmke Drum can determine i the fabric has been properly laundered. It can also show if the fabric is degrading.

2. ***Static Decay and Surface Resistivity:*** These tests measure the electrical characteristics of ESD control fabrics for use in microelectronic environments. These fabrics are designed to provide a controlled release of electrical charge that will not damage sensitive circuitry. Static Decay is the speed of the charge-draining of materials. The faster the decay time, the better. Surface Resistivity measures the resistance of electrical flow over or through a fabric in ohms. The Surface Resitivity of fabrics used in ESD controlled areas should be between 105 - 1010 megaohms. The lower the Surface Resistivity (the closer to 105), the better a charge is dissipated, and the greater the ESD protection.

3. ***WVT and Air Porosity:*** WVT (water vapor transmission) and Air Porosity are tests that are used to meas the relative comfort of a fabric. WVT is the simulated measure of the amount of body moisture that will pass through a fabric in a 24-hour period. Air Porosity measures the volume of air, in cubic feet, that will pass thro a fabric in one minute. The greater the WVT and Air Porosity, the more comfortable a fabric will be; however, Porosity will be limited by Pore Size.

How Should Fabric Filtration be Measured?

PFE (Particle Filtration Efficiency) is a test used to measure the number of particles of a given size that will p through a fabric. The PFE test procedure is not performed in a controlled environment. Therefore, PFE testin has shown to not be comparable at different times/conditions and does not provide repeatable results. This invalidates any results generated from PFE testing. Pore size is a better measure of the size of particles that pass through a fabric. Pore Size measures the size of the interstices in a fabric and can be correlated with particle size. However, the Body Box test is the best measure of the performance of a fabric in actual cleanro usage. The Body Box test has been designed by the IEST-RP-CC-003.2 to test a fabric/garment combinatio The Body Box measures particles of specific sizes that are released as human subjects simulate routine

movements that may be encountered in a Cleanroom environment. The Body Box is designed to take into account the different particulation rates across a variety of subjects. Burlington Barrier fabrics have been evaluated across a random sampling of test subjects in a Class M1 Body Box that has been certified to captu 99.9% of all released particles. The M1 cleanroom classification is internationally accepted as the most stringent test environment.

Back to Top